



LEO COMMERCIALIZATION

NextSTEP-2 BAA NNH16ZCQ001K-CDISS Appendix I:

**Commercial Destination Development in Low Earth
Orbit using the International Space Station**

Industry Forum

June 27th, 2019



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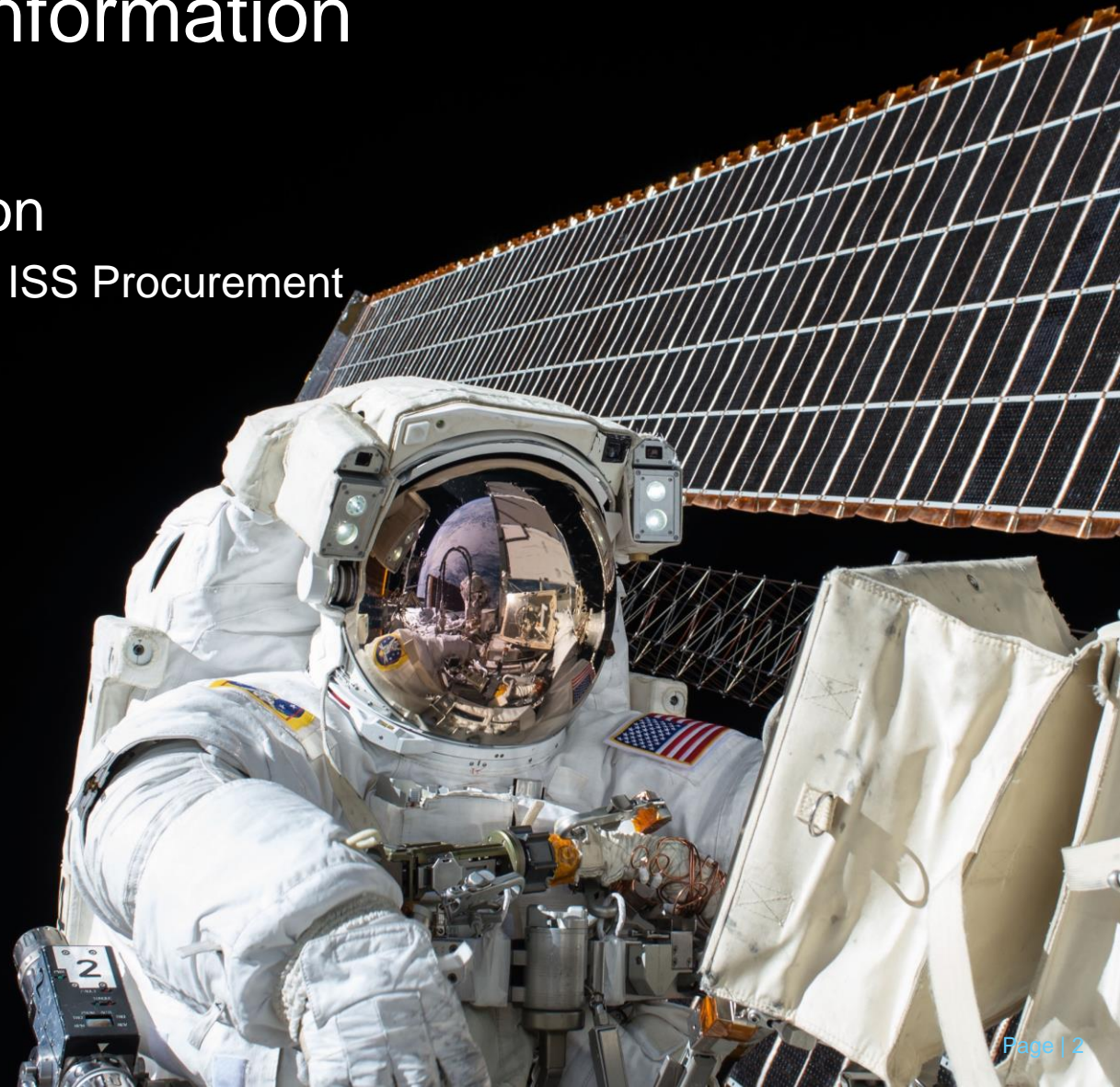
Welcome and General Information

National Aeronautics and Space
Administration



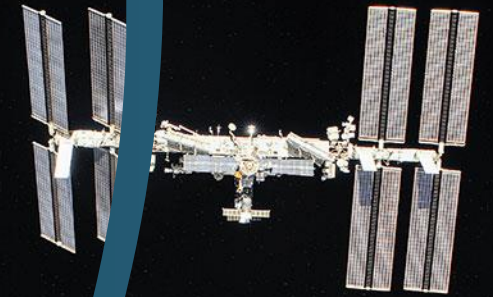
Adrian Clayton
Deputy Manager, ISS Procurement

David Korth
ISS Program



Agenda

Topic	Presenter
Welcome and General Information	Adrian Clayton, David Korth
Opening Remarks	Kirk Shireman
LEO Commercialization Background	Doug Comstock
Orientation and Procurement Overview	Lawrence Miller
Overview of BAA – Appendix I	David Korth
– BAA and Proposal Content	Rebekah Anchondo
– Technical Approach / Technical Library	Brian Kelly
– Business Approach	Kevin Engelbert
– Price	William Cleek
– Statement of Work	Damon Shaffer
– Request for Government Furnished Property and Services	Kevin Engelbert
– Model Contract and Task Orders	Lawrence Miller, Sharon Conover
– Request For Task Order Proposals	Chris McElroy
– Evaluation Criteria	David Korth
Q&A, Schedule, and Closing Remarks	David Korth





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Opening Remarks

Kirk Shireman

ISS Program Manager





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LEO Commercialization Background

Doug Comstock
HEOMD, LEO Commercialization



Commercial LEO Development Framework

Objectives

Current/Near-Term

- Support NASA's R&D needs and ISS National Laboratory needs
- Leverage ISS capabilities to stimulate demand and catalyze new markets
- Meet International Partner (IP) Intergovernmental Commitments
- Collaborate with IPs on new market development

Mid-Term

- Support NASA's R&D needs and ISS National Laboratory needs
- Incorporate IP commercial needs
- Initiate phased transition from ISS to Commercial with attached (initially) and/or free flyers
- Stimulate global demand and catalyze new markets

Long-Term

- Turn over LEO operations to the private sector
- Purchase NASA's needed R&D Services from commercial provider at lower cost than ISS
- Shift NASA/IP focus and resources towards exploration



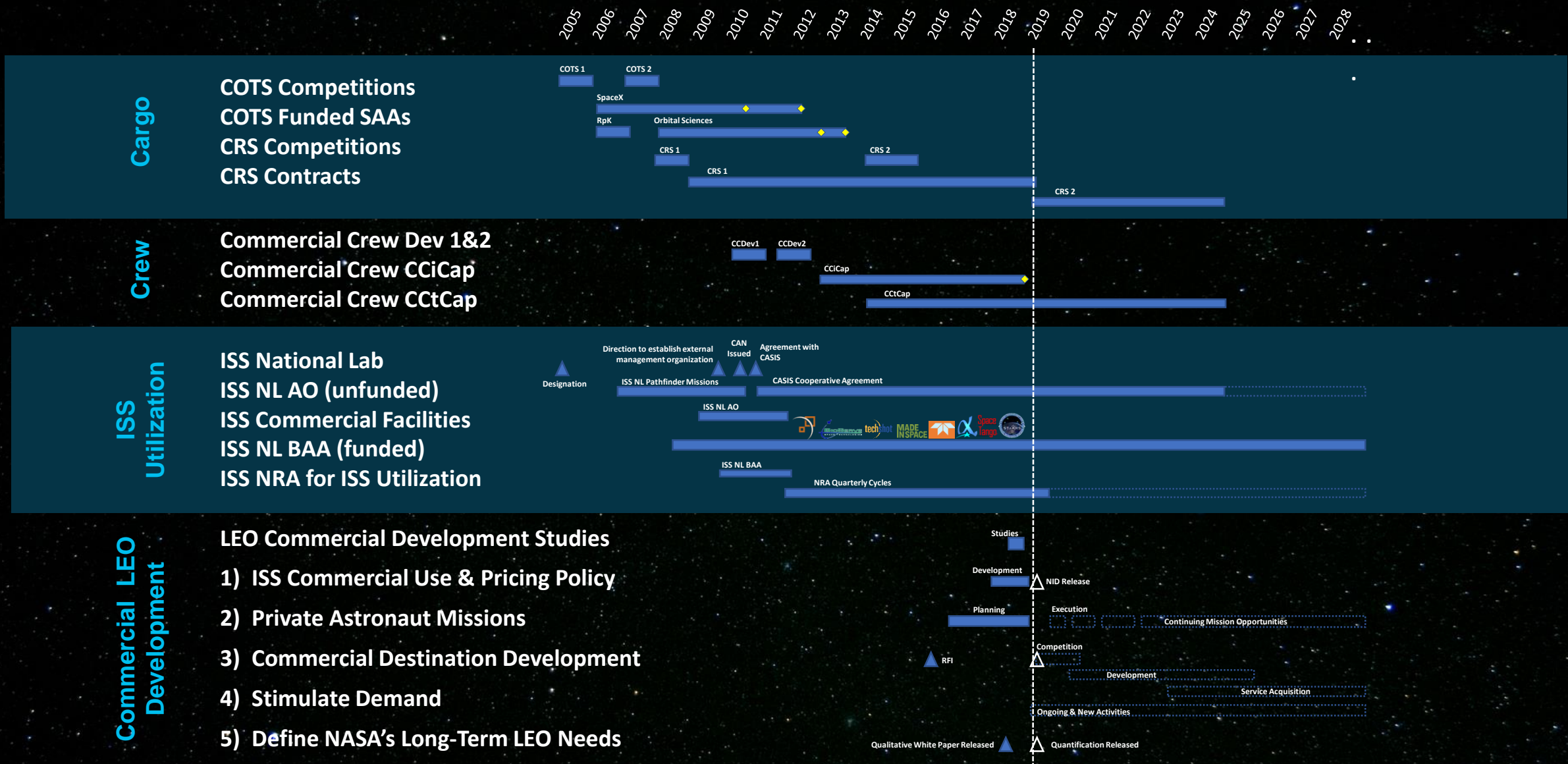
Activities

- Document and share with industry NASA's comprehensive approach for global Commercial LEO Development:
 - 1) Establish ISS commercial use and pricing policy
 - 2) Enable private astronaut missions to ISS
 - 3) Initiate process for commercial development of LEO destinations
 - 4) Seek out and pursue opportunities to stimulate demand
 - 5) Quantify NASA's long-term needs for activities in LEO

- Partner with industry to develop and demonstrate new LEO destinations
- Initiate phased transition to acquire needed services from commercial destinations rather than ISS
- Avoid competition from ISS
- Seek out and pursue opportunities to stimulate demand both domestic and international
- Initiate transition of ISS assets while still satisfying IP agreements

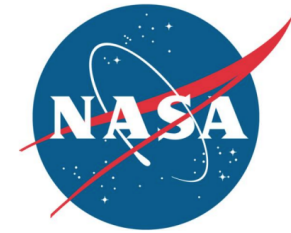
- Complete transition of ISS assets at end of life
- Conduct NASA's needed R&D on commercial destinations in LEO
- Purchase 'LEO National Lab' services from commercial provider?

Commercial LEO Development



NASA Plan for Commercial LEO Development

- In the near term, NASA developed a five-point plan building on the work of the last two decades. This plan includes new policies, multiple solicitations, and new information that can be found on the Leo Economy website.
 1. NASA established a commercial use and pricing policy for the International Space Station (ISS) that will enable companies to reduce uncertainty and build business plans as they seek to perform commercial activities, including marketing;
 2. NASA has announced the intent to enable flight of private astronauts to the ISS with the first mission as early as 2020, including a solicitation as a mechanism to enable the assessment and approval of these missions;
 3. NASA has initiated a process for developing commercial low-Earth orbit destinations, including the overall strategy, timeline, and solicitations for two paths including use of the ISS Node 2 Forward Port, and direct to a free-flyer destination;
 4. NASA has laid out a plan to pursue opportunities to stimulate scalable and sustainable demand for LEO destinations including solicitations with targeted calls for in-space manufacturing and regenerative medicine flight demonstrations, as well as ideas to broadly stimulate demand growth;
 5. NASA has updated a white paper quantifying the agency's long term needs in LEO.



NASA Plan for Commercial LEO Development

to achieve a robust low-Earth orbit economy from which NASA can purchase services as one of many customers

Summary and Near-Term Implementation Plans

June 7, 2019

Notional LEO Destinations Roadmap

Current/Near-Term

Mid-Term

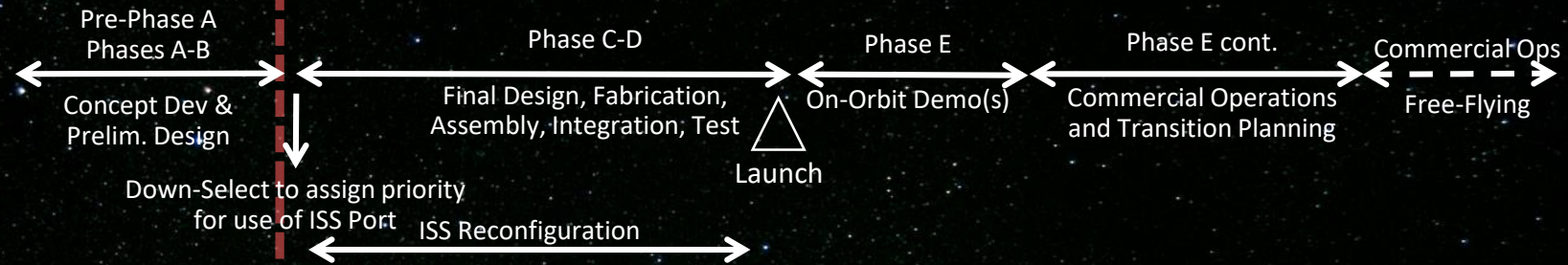
Long-Term



NextStep 2 BAA
Appendix I

June 21, 2019
Solicitation

ISS Port Path



NextStep 2 BAA
Appendix K

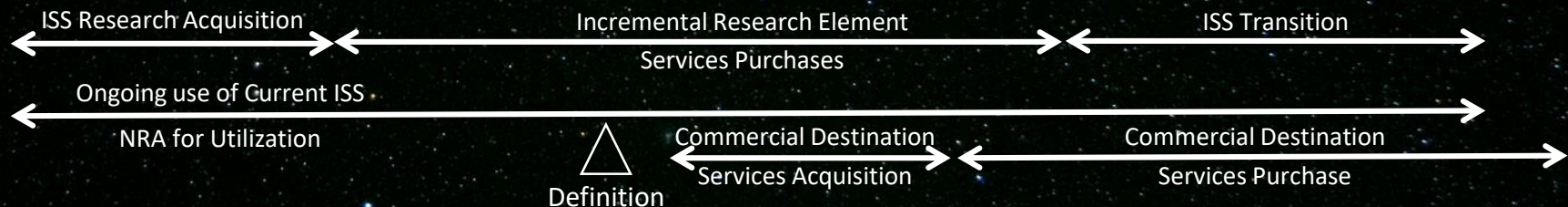
July 22, 2019
Synopsis

Free Flyer Path



Service
Acquisition
Competitions

NASA Services Acquisition



Orientation and Procurement Overview

Lawrence Miller
Contracting Officer

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Disclaimer

- These slides are not to be interpreted as a comprehensive description of the procurement strategy or requirements in the solicitation
- In the event of *any* discrepancy between information you hear today and information in Appendix I of the NextSTEP-2 Broad Agency Announcement (BAA), the Appendix is the controlling document.
- A copy of this presentation is posted on the CDISS website at:

<https://cms.nasa.gov/nextstep/issport>

FBO.GOV link is live

<https://www.fbo.gov/notices/933d1c5b1a6823ac5b94ae40d375aa38>



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NextSTEP-2 Appendix I: Commercial Destination Development in Low Earth Orbit using the International Space Station
Solicitation Number: NNH16ZCQ001K-CDISS
Agency: National Aeronautics and Space Administration
Office: Headquarters
Location: HQ Code 210.H

Notice Details

Packages

Interested Vendors List

 Print

 Link

 **Note:** This opportunity allows for electronic responses. [Click here](#) to log in and submit a response.

Complete View

 [Original Synopsis](#)

Presolicitation
Jun 07, 2019
8:36 am

 [Changed](#)

Jun 21, 2019
3:41 pm
Solicitation

 [Changed](#)

Jun 21, 2019
3:48 pm

 [Changed](#)

Jun 21, 2019
3:53 pm

 [Changed](#)

Jun 24, 2019
6:37 pm
Solicitation

 [Changed](#)

Jun 26, 2019
3:27 pm

[Return To Opportunities List](#)

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Solicitation Number:
NNH16ZCQ001K-CDISS

Notice Type:
Modification/Amendment

Synopsis:

Added: Jun 21, 2019 3:41 pm Modified: Jun 26, 2019 3:27 pm [Track Changes](#)

This is a modification to the synopsis entitled NextSTEP-2 Appendix I: Commercial Destination Development in Low Earth Orbit using the International Space Station which was posted on June 7, 2019. You are notified that the following changes are made: Post Solicitation and Pre-proposal Virtual Conference Information.

Pre-proposal Virtual Conference Information:
Time: 1:00pm - 4:00pm CDT
Date: June 27, 2019
Registration Link: <https://www.surveymonkey.com/r/TC3XWRC>
registration is required to receive access to the pre-proposal conference.

ALL FILES

 [NextSTEP-2 Amendment 9](#)

Jun 21, 2019

 [NextSTEP-2 Omnibus B...](#)

 [Solicitation 1](#)

Jun 21, 2019

 [Attachment A - State...](#)

 [Attachment B - Model...](#)

 [Attachment C - RFTOP...](#)

 [Attachment D - Data ...](#)

 [Attachment E - Techn...](#)

 [Attachment F - Reque...](#)

 [Attachment G - Busin...](#)

 [Attachment H - Prici...](#)

 [Attachment I - Reque...](#)

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 [NextSTEP-2 BAA Appen...](#)

 [Solicitation 2](#)

Jun 24, 2019

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Purpose and Logistics

- The purpose of this Industry Forum / Preproposal Conference is to help industry understand the Government's requirements and objectives
- Questions:
 - A brief question and answer session will be conducted at the end of the conference
 - All questions must be submitted via email to lawrence.l.miller@nasa.gov
 - Official responses to written questions received by the Contracting Officer will be posted to FBO.gov
 - The deadline for submitting questions regarding information presented during this conference is June 28, 2019

Communications/Fact Finding

- Per the NextSTEP-2 Omnibus BAA, Section 5.2 Evaluation, NASA may ask about a specific point or points in a proposal and conduct fact finding or due diligence activities. These activities may result in a request for a revised proposal. NASA has the ability to determine the appropriate method for any such communications, e.g., be in writing, virtual, or person.
- A Blackout Notice will be issued for this BAA
 - In accordance with NASA Federal Acquisition Regulation Supplement 1815.201(f)(i), all communications with industry will be handled by the Contracting Officer
- After selection, NASA will enter into negotiations with selected Offerors to finalize pricing and terms and conditions of the FFP IDIQ contract and task orders.

General Information

- Solicitation Number: [NNH16ZCQ001K-CDISS](#)
- Notice of Intent (NOI) Due Date: June 28, 2019
- Full Proposal Due Date: August 5, 2019, 5 PM Central Time via FBO.gov
- Funding Instrument Type: FAR 15 R&D IDIQ Contract
- Competition: Full and Open to any United States Industry Entity that meet 51 USC 50101
 - Solicitation is not open to Non-Profits, Academia, NASA Centers or FFRDCs
- NAICS Code – 541715: Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
- All Offerors must be registered in SAM.gov (details to register in back-up)

Ombudsman

- Ombudsman (NFS 1852.215-84): “...before consulting with an ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations to the Contracting Officer for resolution ... If resolution cannot be made by the Contracting Officer, interested parties may contact the installation ombudsman ...”
- JSC Ombudsman:
NASA Johnson Space Center
Delene R Sedillo, Associate Director of Procurement
2101 NASA Parkway, Mail Code: BA
Houston, TX, 77058-3696
Phone: (281) 483-1808
delene.r.sedillo@nasa.gov
- http://prod.nais.nasa.gov/pub/pub_library/Omb.html





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Overview

David Korth
ISS Program



BAA Appendix I Purpose, Objectives, and Intent

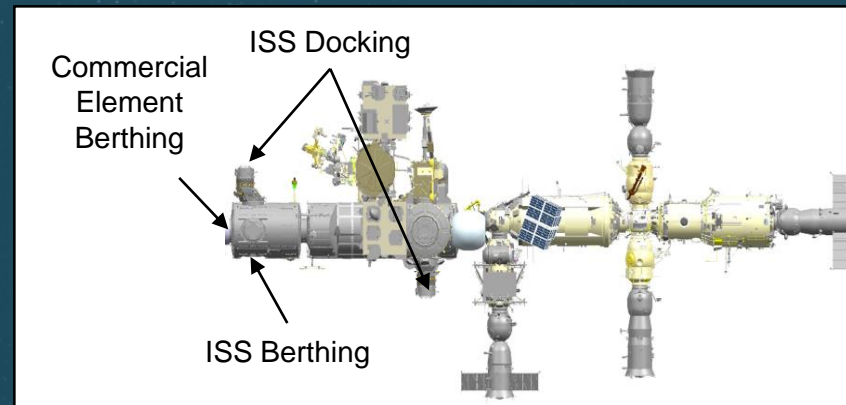
- Purpose & Objectives:
 - To form a public-private partnership for integration and spaceflight demonstration where the Partner objectives to be accomplished are:
 - Successfully deploy one or more habitable commercial elements attached to ISS Node 2 Forward port and demonstrate its ability to provide products and services to a market of Government and commercial customers
 - Transition to a long-term, sustainable, commercial, human spaceflight enterprise in LEO where NASA is one of many customers
- Intent:
 - Government intends to purchase data deliverables and insight to support integration of the Commercial Segment into ISS, and to purchase demonstration of commercial capabilities
 - The Commercial Partner is responsible for development, delivery, and successful operations of their Commercial Segment (CS) and developing commercial markets and achieving commercial viability
 - The requirements for the purchase of commercial services that meet NASA's long-term needs in LEO will be developed and released in a future solicitation
 - Maximize allowing industry to maintain IP and invention rights and flexibility for innovation
 - Treat industry as a partner and reduce oversight by NASA

Acquisition Strategy and BAA Approach

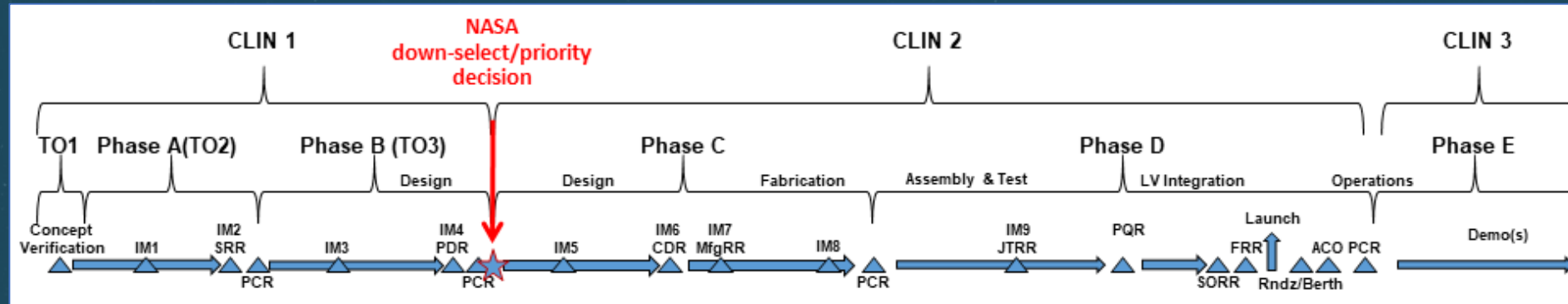
- Acquisition Strategy:
 - NASA intends to select one or more Offerors for award of a contract to complete concept development and early design phases, leading to a down-select for prioritization of use of the ISS port for the commercial demonstration
 - Following the down-select, the awardee will complete the activities necessary to launch and integrate the Commercial Segment with ISS with the goal of an eventual transition to a self-sustaining Commercial Destination to serve both NASA and non-NASA needs
- BAA Approach:
 - Providing Model Contract, Statement of Work, DRL/DRDs, and Task Orders 1 & 2:
 - Provides Offerors an understanding of what NASA requires to successfully and safely integrate commercial elements into ISS
 - Enables Offerors to provide a more realistic price assessment
 - Allows NASA to expedite contract negotiations
 - Assess Offeror Commercial Segment design and development approach, commercialization roadmap, how well the design enables the commercialization approach, and the transition to a Commercial Destination

Approach for Leveraging ISS

- NASA will reconfigure and provide a berthing port at Node 2 Forward and a set of standard services (e.g., power, cooling, crew time) as documented in the ISS Commercial Element Port Accommodations Handbook (ICEPAH)
 - Commercial Partner may request additional unique NASA services
 - ISS will retain 2 USOS docking ports and 1 berthing port for its needs
 - CS can include additional docking and berthing ports for CS use
- Using the ISS allows the Commercial Element partner to take an evolutionary approach to commercial segment development, capability maturation, and commercial demonstration.



CLIN Structure and Notional Project Phases/Milestones



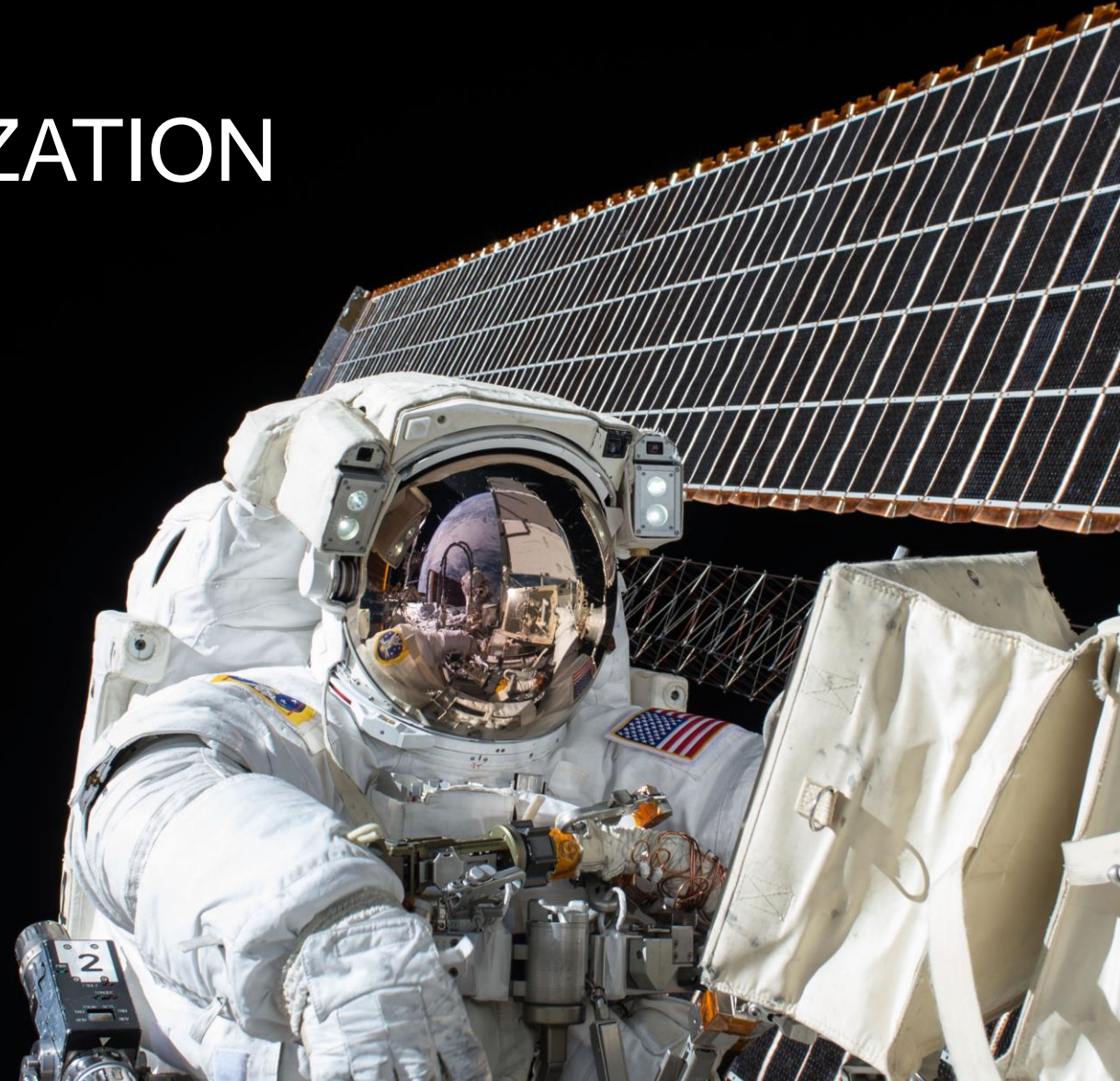
CLIN	Description	ISS Integration Milestones (IM)
CLIN 1	Concept Verification through Preliminary Design	Concept Verification (TO1) IM01 – Mission Concept (TO2) IM02 – System Requirements (TO2) IM03 – System Definition IM04 – Preliminary Design
CLIN 2	DDT&E and Operations	IM05 – Design Progress IM06 – Final Design IM07 – Manufacturing Readiness IM08 – Manufacturing Progress IM09 – Integration and Test IM10 – Operations
CLIN 3	Demonstration of Commercial Segment Capabilities	
CLIN 4	Transition to Self-Sustaining LEO Commercial Destination	
CLIN 5	Special Studies	



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Solicitation Overview

Rebekah Anchondo
ISS Program



Appendix I Summary of Contents

	Title
Appendix I	Commercial Destination Development in Low Earth Orbit using the International Space Station
Attachment A	Statement of Work
Attachment B	Model Contract
Attachment C	Request for Task Order Proposal (RFTOP) for Task Order 1 and Task Order 2
Attachment D	Data Requirements List (DRL) and Data Requirement Description (DRDs)
Attachment E	Technical Library Contents
Attachment F	Requested Government Property/Services Form
Attachment G	Business Case Analysis Template
Attachment H	Pricing Template
Attachment I	Request for Government Support Instructions
Attachment J	Corporate Contribution Worksheet

Summary of Proposal Content

Volume No.	Section No.	Title
		Title Page
1		Executive Summary
2		LEO Commercialization Approach
	1	Proof of Eligibility
	2	Technical Approach
	3	Business Approach
3		Price

Attachment	Title
1	Statement of Work
2	Model Contract
3	Task Orders 1 and 2 Proposal
4	DRL and DRDs
5	Requested Government Furnished Equipment/Services and LOIs
6	Resumes of Key Personnel
7	Corporate Contribution Worksheet
8	Business Case Analysis Worksheet
9	DRD-001, Commercialization Roadmap (Draft)
10	DRD-002, Integrated Master Schedule (Draft)
11	DRD-003, Concept of Operations (Draft)
12	DRD-005, Organizational Conflict of Interest (OCI) Plan (Baseline)
13	DRD-006, Small Business Subcontracting Plan and Reports (Baseline)
14	DRD-007, Mishap Preparedness & Contingency Plan (Baseline)
15	DRD-008, Safety & Health Plan (Baseline)
16	DRD-009, Insight Management Plan (Draft)

Proposal Content

See Appendix I (Section 4.1)

- Title Page
- Volume 1, Executive Summary
 - Prominent and distinguishing features of Volume 2 that demonstrate plans and ability to meet the goals and objectives in Section 1.3: Objectives of Appendix
 - If it fails to meet the goals and objectives, it will be withdrawn from the review process
 - Do not directly reference other sections of the proposal
- Volume 2, LEO Commercialization Approach
 - Section 1, Proof of Eligibility
 - Provide information showing that the Offeror and all team members are eligible participants:
 - Restricted to United States industry entities as Prime Offeror per 51 U.S.C. § 50101
 - Adhere to 51 U.S.C. § 50131 by acquiring space transportation services from United States commercial providers
 - Comply with the National Space Transportation Policy by using U.S. manufactured launch vehicles
 - Section 2, Technical Approach
 - Section 3, Business Approach
- Volume 3, Price

Proposal Content

Attachments: Model Contract, SOW, RFTOP, DRL & DRDs

- The Offeror may propose minor exceptions or specific modifications to the Model Contract, Statement of Work, and DRL and DRDs based on their Technical and Business Approach
 - These exceptions or changes shall be clearly identified and described, with supporting rationale
- Model Contract
 - Offerors shall submit entire Model Contract with all Offeror fill-ins (OFI) completed
 - Material exceptions to the model contract terms and conditions may result in the proposal being deemed unacceptable
- Statement of Work
 - NASA-provided SOW contains NASA's minimum mandatory requirements for all defined CLINs and Integration Milestones
 - Offeror shall submit SOW with all OFIs completed and clearly indicate proposed modifications and exceptions
- Request for Task Order Proposal (RFTOP) for Task Order 1 and Task Order 2
 - Offerors shall submit their firm-fixed-price IDIQ Task Order 1 and 2 Proposal
- Data Requirements List (DRL) and Data Requirements Description (DRDs)
 - Offerors should indicate proposed modifications and exceptions to the NASA-provided DRL and DRDs
 - Offerors shall submit initial submission of DRD -001, -002, -003, -005, -006, -007, -008, -009

Technical Approach

Brian Kelly
ISS Program

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Proposal Content

Volume 2, Technical Approach

- To ensure the best possible use of valuable ISS and other NASA resources, NASA is requesting detailed information on the technical approach for designing, building, and operating of a Commercial Element, Segment, and Destination.
- The Technical Approach is broken into five key areas:
 - Technical Concept and Evolution
 - Development, Certification, and Demonstration Approach
 - Sustaining and Operations of Commercial Segment
 - Safety and Mission Assurance
 - Technical Risk Management Strategy and External Dependencies

Proposal Content

Volume 2, Technical Approach

- The Technical Approach should address the following areas:
 - The concept of operations for the Commercial Segment at ISS including schedule, on-orbit assembly sequence and outfitting, features and capabilities, and the plans for transition to an independent Commercial Destination
 - The development, build, and certification approach for the overall commercial segment with significant emphasis on:
 - Design, Development, Test, and Evaluation (DDT&E) of first element to be launched and integrated to ISS
 - Approach to crew habitation systems design (e.g. life support and exercise)
 - Compliance with ISS interface and Safety requirements as documented in the CERD
 - Sustaining approach including reliability and maintainability, logistics and maintenance, sustaining engineering, hardware sparing, vendor retention plans, and use of ground testbeds

Note: Offerors should reference the solicitation for the full scope of Technical Approach proposal content.

Proposal Content

Volume 2, Technical Approach

- The Technical Approach should address the following areas:
 - The NASA services, resources and assets (both ground and on-orbit) requested to support development, launch, activation, and operations of the Commercial Segment as described in the ICEPAH and to be documented in Attachment 5 - Requested Government Furnished Equipment/Services and LOIs of the proposal
 - The approach, processes, and requirements for ensuring crew and vehicle safety throughout all phases of development, test, and on-orbit execution
 - The technical, schedule, and safety-related risks and mitigation strategies
 - External dependencies, including U.S. and foreign provider dependencies
 - How the Commercial Segment design meets targeted commercial markets and the business approach

Note: Offerors should reference the solicitation for the full scope of Technical Approach proposal content.

Technical Library

- A Technical Library has been created that contains a variety of documents that Offerors may find helpful during preparation of their proposals.
 - The Technical Library contains some documents that are export controlled
 - Documents that are export controlled are marked accordingly and cannot be further transferred to foreign entities
 - A maximum of two parties from each Offeror may have access to the Technical Library.
 - A listing of the Technical Library contents can be found in **Attachment E: Technical Library Contents**
- There are two methods to gain access:
 - Those that currently have a NASA Domain Consolidation (NDC) Username have already been cleared for Export Control access and may apply for BAA Technical Library Access by sending an e- mail to lawrence.l.miller@nasa.gov. Be sure to include your NDC Username on the email.
 - Once access is granted, the Technical Library website can be accessed via the link below:
<https://iss.sp.jsc.nasa.gov/Int/Projects/LEOComm/CDISS-Tech-Library>
 - Those that do not have a NDC Username have not been cleared for Export Control access and shall apply for BAA Technical Library Access by sending an e-mail to lawrence.l.miller@nasa.gov with the following information:
 - Name, Company Name, Citizenship, Contact Phone Number, Contact e-mail address, Contact Address and any government clearance information to help with clearing the applicant.
 - NASA will work to clear the submitted individuals and provide the Technical Library contents via NASA's NOMAD Large File Transfer service (<https://transfer.ndc.nasa.gov>).
- The due date for submission of proposals will not be extended for any Offeror based on additional time necessary for obtaining access.

Technical Library

- The following documents, contained in the Technical Library, provide information on the requirements and processes necessary to integrate a commercial segment with the ISS. All applicable documents are located in the technical library.
 - [SSP 51074 Commercial Element Requirement Document \(CERD\)](#) – Draft requirements document that defines safety and vehicle physical & functional interface requirements and verification methods between ISS and Commercial Segment. NASA intends to baseline the CERD before contract negotiations.
 - [ISS Commercial Element Port Accommodation Handbook \(ICEPAH\)](#) – Summarizes ISS resources, capabilities, and NASA expectations for a CS provider.
 - [SSP 50964 Visiting Vehicle ISS Integration Plan](#) – Provides insight into how the ISS Program plans to execute integration activities and processes. This document is how NASA performs integration for current visiting vehicles. NASA is developing a Commercial Segment Integration Plan and intends to baseline it before contract negotiations.
 - [Bilateral Data Exchange Agreements List and Schedule \(BDEALS\)](#), [Bilateral Hardware and Software Exchange Agreements List and Schedule \(BHSEALS\)](#), [Joint Events List](#) – Draft templates that provide insight into the types of data exchanges (e.g. data for external contamination assessments), hardware/software exchanges (e.g. GFE and simulators), and joint test requirements are needed to successfully integrate a CS onto the ISS.



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Business Approach

Kevin Engelbert
ISS Program



Proposal Content

Volume 2, Business Approach

- To ensure best possible use of the ISS and associated resources to enable a LEO Economy, NASA is requesting the type of information usually included in a Business Plan briefing to a potential investor or lender
 - Governance Structure & Management Strategy
 - Commercialization Strategy (Offering, Market, Business Development)
 - Financial Strategy (Funding Required and Sources)
 - Financial Risk Management Strategy and External Dependencies
- NASA needs to be assured that your Business Approach will successfully develop and demonstrate commercial capabilities that enable execution of commercial activities, leading to a sustainable Commercial Destination in LEO
 - The Business Approach should be consistent with the Technical Approach, Statement of Work, the Commercialization Roadmap (DRD-001), and Task Orders 1 & 2

Proposal Content

Volume 2, Business Approach (cont.)

- NASA is requesting details on your commercialization approach (including key assumptions) while operating at the ISS, and also for the long-term Commercial Destination after departure from ISS
 - The portfolio of products and services should focus on those that support long-term viability in the commercial market rather than specifically on NASA's needs.
- NASA is requesting a forecast of the anticipated dates when individual revenue streams and the Commercial Segment as a whole become commercially viable, as well as recommended dates for initiating and completing transition to a self-sustaining Commercial Destination
- NASA is requesting a cash flow summary showing the expected break-even point and the level of profitability at the recommended transition point from ISS to a Commercial Destination in LEO
- Forecasted revenue and estimated cost (including basis of estimate) should be provided in ***Attachment 8: Business Case Analysis Worksheet*** of the proposal

NASA Commercial Use Policy

- The “NASA Interim Directive (NID) on Use of ISS for Commercial and Marketing Activities” is applicable to commercial & marketing activities in USG modules and to the crew supporting them
- The NID also defines what is and is not applicable for commercial & marketing activities conducted in a Commercial Element/Segment or an International Partner’s module, including approved use of NASA crew, civil servants, or other U.S. Government (USG) resources to enable them
 - Note: the ISS Crew Code of Conduct referenced in the NID applies to all crew on ISS

Corporate Resources

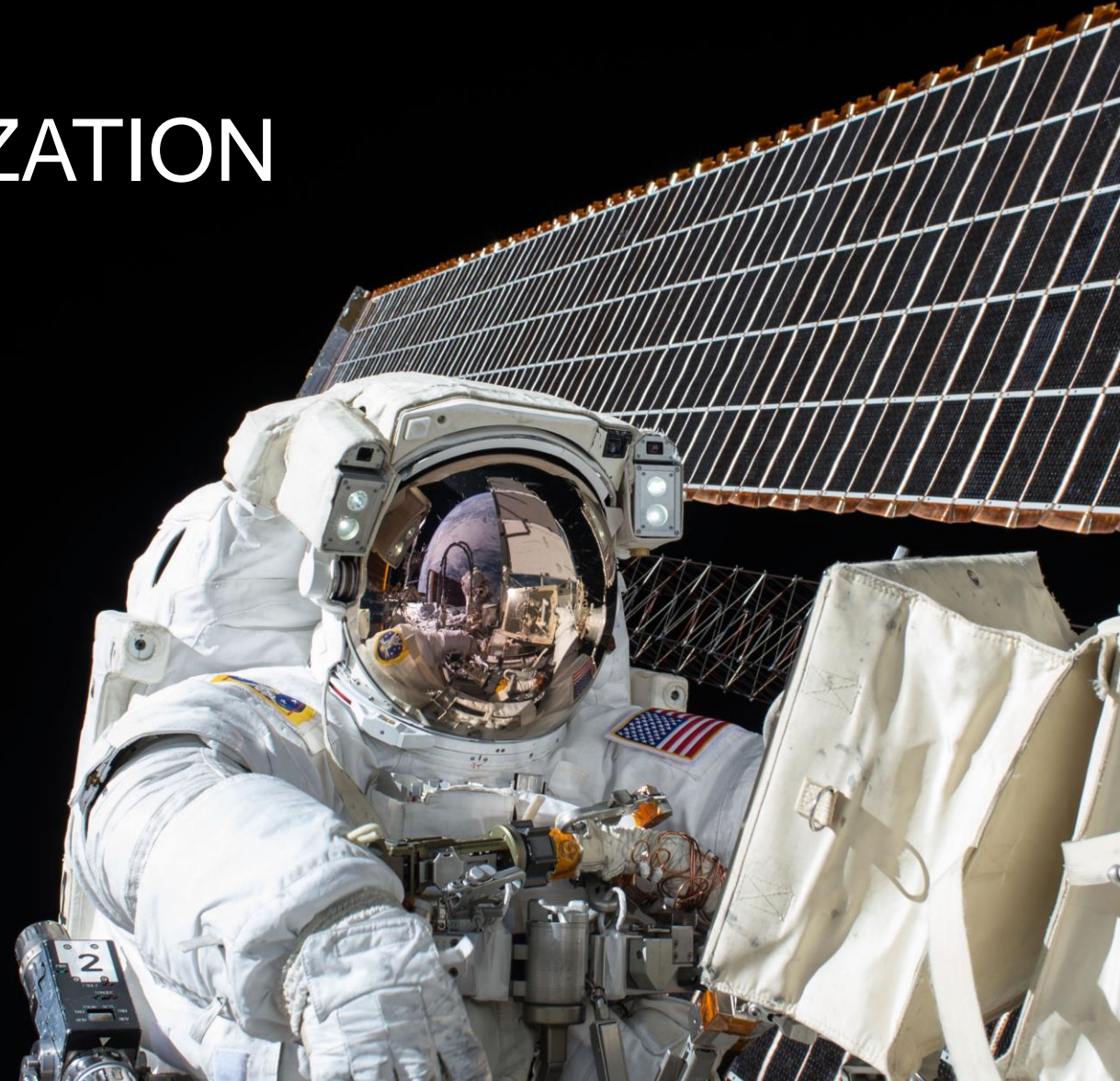
- NASA's financial contribution is limited; Industry is expected to provide a significant financial commitment to the public/private partnership
- For Appendix I, a corporate contribution is required; however, there is no mandatory minimum contribution required for eligibility
- ***Attachment J: Corporate Contribution Worksheet*** should be completed and submitted as ***Attachment 7: Completed Corporate Contribution Worksheet*** of the proposal showing
 - The total corporate contribution
 - The estimated value of federally funded participants and/or the non-reimbursable use of federal government facilities
 - NASA's contribution, i.e. the proposed price to NASA in Volume 3 for CLINs 1-3



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Price

William Cleek
ISS Program



Proposal Content

Volume 3, Price Proposal

- The goal of the pricing template is for Offerors to estimate the overall price to the government for CLINs 1-3.
- Complete the pricing template provided in BAA **Attachment H – Pricing Template** and include in **Volume 3, Price** of the proposal
- Price proposal shall:
 - Propose a Pricing Template for each Commercial Element as appropriate to accommodate their Technical and Business Approach
 - Provide a basis of estimate (BOE) that explains all pricing and estimating techniques
 - Include supporting rationale for all deliverables proposed to accomplish the SOW for the CLIN and completion criteria
 - Utilize flexibility to alter columns in the Pricing Template to accommodate their proposed milestone amounts.
 - Ensure the price to NASA reflected in Row 9 of the Pricing Template shall be consistent and traceable to Row 30 of the Revenue Section within **Attachment 8: Business Case Analysis Worksheet**

	CLIN 1												CLIN 2						CLIN 3	Total		
	Phase A								Phase B		Phase C / D						Phase E					
	TO 1				TO 2				TO 3		TOs TBD ----->											
	Concept Verification				Mission Concept				Systems Req. Review				Systems Def. Review	Prelim. Design Review	Design Progress	Final Design	Mfg. Readiness	Mfg. Progress	Integration & Test	Operations	Demo. Of Comm'l Services	
Title	Optional Milestone [OFI]	Optional Milestone [OFI]	Mandatory Milestone [OFI]	Total	Optional Milestone [OFI]	Optional Milestone [OFI]	IM01 Milestone [OFI]	Total	Optional Milestone [OFI]	Optional Milestone [OFI]	IM02 Milestone [OFI]	Total	IM03 Milestone(s) [OFI]	IM04 Milestone(s) [OFI]	IM05 Milestone(s) [OFI]	Milestone(s) [OFI]	Milestone(s) [OFI]	Milestone(s) [OFI]	Milestone(s) [OFI]	Milestone(s) [OFI]	Milestone(s) [OFI]	
Payment Amount	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	\$ -
Completion Date	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	
Completion Criteria	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	OFI	

The logo features the letters 'LEO' in a bold, blue, sans-serif font. To the right of the letters is a blue circular icon with a white crescent shape inside, resembling a stylized orbit or a celestial body.

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Statement of Work

Damon Shaffer
ISS Program



SOW Overview and Organization

Overview

- The SOW describes the requirements for the Contractor to:
 - Accomplish the NASA Integration Milestones
 - Certify the CS for ISS interfaces and safety
 - Deliver the CS to ISS
 - Activate and checkout the CS
 - Demonstrate commercial capabilities and services while attached and operating on ISS
- Leverage commercial products and process to the maximum extent practical and rely on a focused insight approach reflective of a public-private partnership
- SOW addresses the entire duration of the contract, not only TO's 1 and 2 which are authorized initially

Organization

- Section 1.0 – Introduction
 - Provides background and description of scope
 - Defines roles and responsibilities
- Section 2.0 – Processes and Methods
 - Defines processes and methods which apply throughout contract period of performance
- Section 3.0 – ISS Integration Requirements and Milestones
 - Defines minimum content for ISS Integration Milestones
- Section 4.0 – Govt Furnished Equipment and Services
 - Enables GFE/GFS exchange
 - References BHSEALS for details

ISS Integration Milestones

- Concept Verification
- 3.2.1 IM01 – Mission Concept
- 3.2.3 IM02 – System Requirements
- 3.2.4 IM03 – System Definition
- 3.2.5 IM04 – Preliminary Design
- 3.3.1 IM05 – Design Progress
- 3.3.2 IM06 – Final Design
- 3.3.3 IM07 – Mfg Readiness
- 3.3.4 IM08 – Mfg Progress
- 3.3.5 IM09 – Integration and Test
 - Interface Certification Review
- 3.3.6 IM10 – Operations
 - SORR, FRR
 - Launch, Activation, Checkout
- Structure based on NPR 7123.B
 - Offeror may reorganize Integration Milestones as long as minimum content is met
- Major Milestone Reviews
 - All review Issues/Actions are dispositioned and tracked
 - Design and supporting documentation is of acceptable maturity
 - No significant design concerns have been identified
 - NASA and the Contractor concur that the project is ready to proceed to the next milestone
 - Review Minutes are approved
 - Evidence of Completion Package (DRD-023) is updated and approved

Integration Milestone 02 Example

1) Design/Insight Data and Related Activities

a) The overall system architecture.

2) Data Products Delivered

a) Baseline DDT&E Plan (DRD-015)

b) Safety and Mission Assurance

Plan (DRD-016)

c) Update Roadmap

d) Baseline Plan (DRD-017)

e) Draft Plan (DRD-018)

f) Evidence (DRD-019)

...

3) Jointly Developed Products: The Contractor shall provide data, perform activities, and participate in reviews to support NASA development of the following products in accordance with the CSIP, and in particular for this Milestone:

a) Baseline CERD Applicability Matrix

b) Draft CS-to-ISS Interface Control Document Interface requirements are complete

...

- Each Integration Milestone identifies the following categories of data:
 - **Design/Insight Data** – Insight data enabling NASA to working-level understanding of Commercial Segment development
 - e.g. SRR Data Package
 - **Data Products Delivered** – Formal product deliverables required by the contract as defined in **Attachment D: DRL and DRDs**
 - e.g. DDT&E Plan (DRD-015)
 - **Jointly Developed Products** – Data developed jointly by the NASA and the Contractor to support joint integration of the CS and ISS
 - e.g. Bilateral Data Exchange Agreements List and Schedule (BDEALS)



LEO COMMERCIALIZATION

Request for Government Property and Services

Kevin Engelbert
ISS Program



Use of Government Property & Services

- Section 4.2.2 of Appendix I addresses different types of Government Property & Services available to the Offeror on an as-available, non-interference basis
 - Government Furnished Property: Reference FAR Part 45
 - Use of any hardware or equipment provided at no charge through the contract (Attachment J-2) for a defined period of time for performance of work on the contract.
 - Government Furnished Services:
 - Use of any ISS on-orbit resources (e.g. power, heat rejection, crew time, etc.) or ISS Program managed ground services provided through the contract for a defined period of time for performance of work on the contract (see Clause H.15(a))
 - Contract consideration or a reimbursable agreement may be required depending on the circumstances of the proposed use (see Clause H.15.(c)) and application of NASA Interim Directive (NID) on the Use of ISS for Commercial and Marketing Activities
 - Government Services:
 - Use of other NASA Center services (e.g. facilities, subject matter expertise, etc.) provided on a reimbursable basis per Section 4.2.2.2 of Appendix I
 - All requests for Government Property & Services should be listed in ***Attachment 5 - Requested Government Furnished Equipment/Services and LOIs*** of the proposal

Requests for Support from a NASA Center

- Section 4.2.2.2 of Appendix I encourages Offerors to submit a Request for Support (RFS) to the appropriate NASA Center for any use of specialized analysis by the NASA workforce or unique NASA ground services. Refer to ***Attachment I Request for Government Support Instructions*** of this solicitation for instructions
 - Note: Section 4.2.2.2 will be amended to clarify that submittal of an RFS is not mandatory, but NASA requests they be submitted by July 5, 2019 to the appropriate NASA Center Point of Contact (POC) listed in ***Attachment I Request for Government Support Instructions***
- The Center POC will then coordinate with the performing organization(s) at the Center to prepare a Letter of Intent (LOI) to be included in the Offeror's proposal as part of ***Attachment 5 - Requested Government Furnished Equipment/Services and LOIs***
 - The LOI serves as a confirmation of availability and a substantiated basis of estimate (BOE) for the reimbursable cost associated with the requested service which lends credibility to the proposal
 - The LOI is non-binding, non-exclusive and contingent on the Offeror's proposal being selected and relevant Task Order being authorized
- Communications with the Center POC must be limited to the specific services requested; the POCs will not provide any assistance, opinions or advice on the Offeror's proposed approach for performing the Statement of Work in Appendix I

Option to Purchase Surplus Equipment

- Offerors may propose to purchase and take title to surplus Government Property to be consumed in their technical approach
- In this scenario, the Offeror shall define a fair market value for the asset as part of ***Attachment 5 - Requested Government Furnished Equipment/Services and LOIs*** to the proposal
- Following selection, and potentially as late as after the NASA Portfolio Decision, NASA will excess the requested surplus property and coordinate a directed “negotiated sale” administered by the Government Services Administration under the authority in NPR 4300.1C, Section 5.4
- There is no guarantee that requests will be granted, however, this solicitation is being used to meet the “fair market value” and competition requirement in accordance with NPR 9090.1 Appendix E

Model Contract

National Aeronautics and Space
Administration

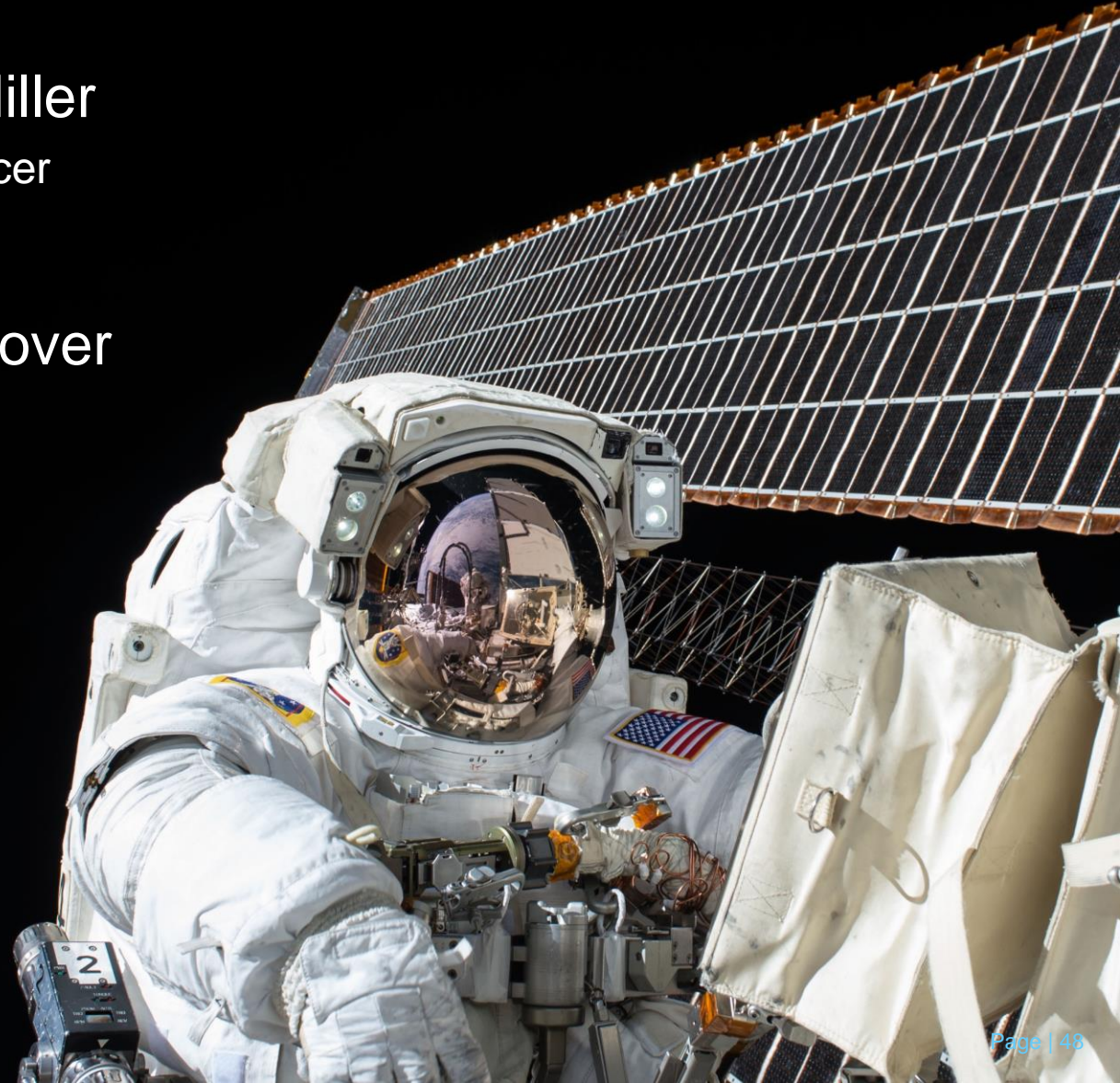


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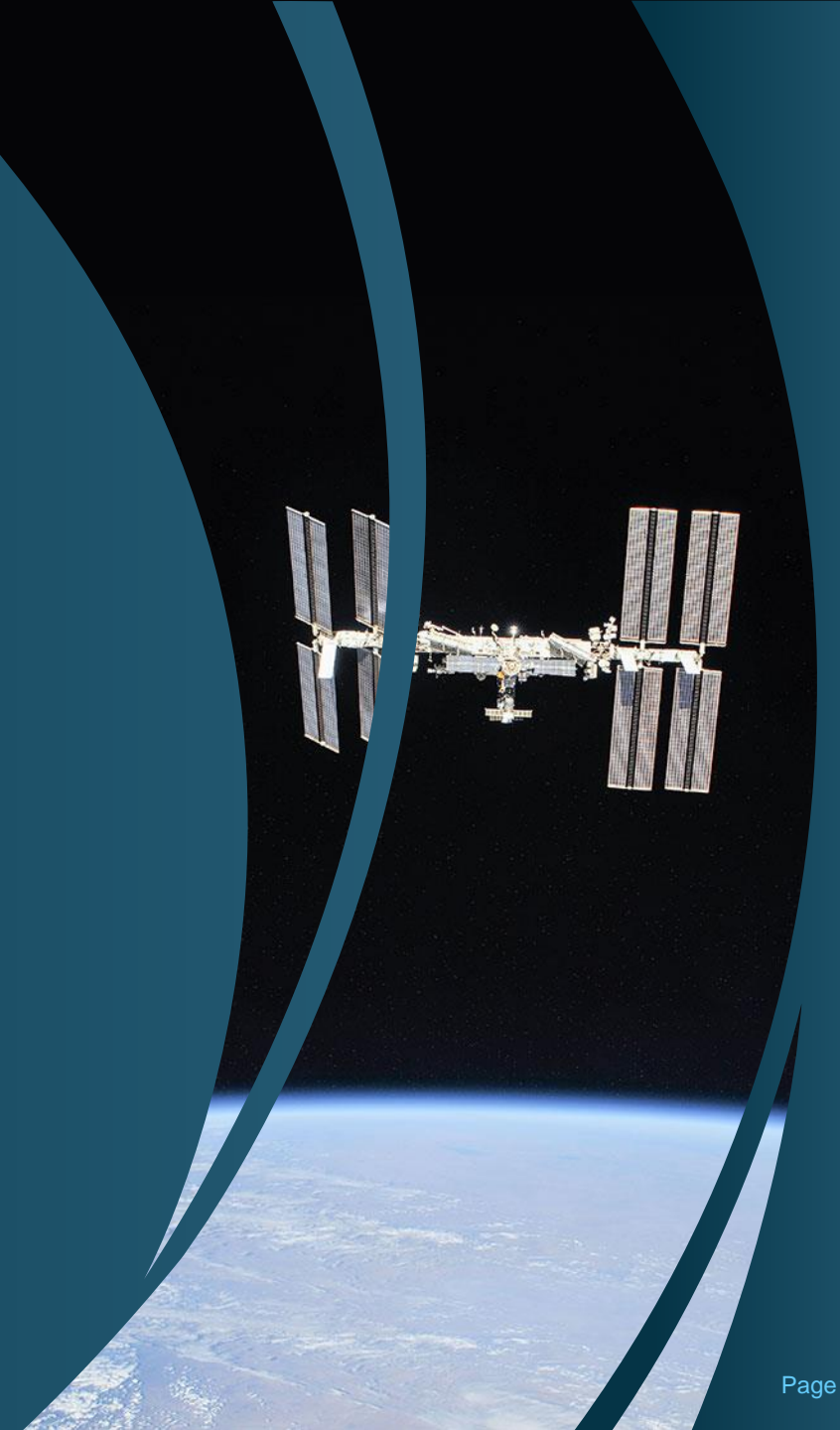
Lawrence Miller
Contracting Officer

Sharon Conover
ISS Program



Model Contract Key Points

	Title
	Table Contents
Section A	Solicitation/Contract Form
Section B	Supplies or Services and Prices/Cost
Section C	SOW
Section D	Packing and Marking
Section E	Inspection and Acceptance
Section F	Delivery of Performance
Section G	Contract Administration Data
Section H	Special Clause Requirements
Section I	Contract Clauses
Section J	List of Attachments
Section K	Representation, Certification, and Other



Model Contract H Clauses

- H.10 1852.228-76 Cross-Waiver of Liability for International Space Station Activities. (Oct 2012) (Deviation)
 - The Intergovernmental Agreement for the International Space Station (ISS) contains a cross-waiver of liability provision to encourage participation in the exploration, exploitation, and use of outer space through the ISS. The cross-waiver of liability in this clause is intended to be broadly construed to achieve this objective.
 - This clause invokes the ISS Cross Waiver of Liability and responsibility on the Contractor, the Contractor's employees and all subs, including CS Crews and owners of CS Cargo or Payloads, to waive all claims against the US and its related entities for any damage arising out of Protected Space Operations.
 - This cross-waiver of liability shall not be applicable to claims between the contractor and its related entities.
 - Requires the Contractor to maintain insurance or demonstrate financial capability to compensate for damages to US Government Property in amount up to \$100 Million except for those areas called out in H.10 (d)
- H.18 Licenses, Permits, and other Authorizations for a Launch or Reentry Service Operator
 - Makes the Contractor responsible for any and all local licenses, permits, clearances and authorizations associated with all launch vehicles associated with CD development including crew and cargo transportation.

Model Contract H Clauses

- H.20 Liability for Third Party Claims
 - Requires the Contractor to acquire \$500M in insurance to cover damages from 3rd party claims arriving from contractor related activities under this contract such as damage to any of the public's property or injury\death to the public
 - This is the same value that the FAA requires for a commercial licensed launch; we chose the amounts to align with the Commercial Space Launch Act (CSLA) requirements, which apply during the launch and re-entry phase of the contract, so the amounts will be consistent throughout the entire contract.
- H.22 Authority for Use of ISS for Commercial and Marketing Activities
 - Identifies the NASA Directives, Federal Regulations, and ISS International Partner agreements the Contractor, including crews, must comply with in using ISS as part of a commercial enterprise.

Model Contract H Clauses

- H.23 Commercial Segment Crew, Cargo, and Payloads
 - The clause extends the cross waiver clause and liability to the CS Crew and owners of CS cargo and payload.
- H.24 Statement of Waiver of Rights to Inventions
 - The Government has certain statutory rights in inventions conceived or first actually reduced to practice under a NASA contract. Pursuant to 51 U.S.C. 20135(g), NASA intends to waive all of the rights to inventions of the United States upon request under this contract to allow the contractor to own their inventions.
- H.30 NASA Insight and Approval
 - Defines the level, and areas, of insight NASA will be inserting and where NASA approval is applied in the execution of the contract. DRD-009, Insight Management Plan, details the specifics of how this clause is implemented.

Intellectual Property Rights

- I.91 52.227-14 Rights in Data - General, (Dec 2007) (Deviation) / Alternate I, (Dec 2007) (Deviation) / Alternate II, (Dec 2007) (Deviation) / Alternate III (Dec 2007) (Deviation) / As Modified Per 1852.227-14 Rights in Data - General
 - Contracts awarded under this Appendix will use a different approach to Data Rights. The model contract includes a deviation to the 52.227-14 “Rights in Data - General” clause by which the Government will acquire limited rights, instead of unlimited rights, for data first produced under the contract, if developed partially or exclusively at private expense.
 - The Government only receives unlimited rights in data produced exclusively at Government expense. In event of Termination for Default, the Agency receives an additional right to manufacture for the Government’s benefit/use, but not unlimited rights.
- H.28 Identification and Representation of Limited Rights Data and Restricted Computer Software (Pre-Award)
 - In addition, the BAA **Attachment B – Model Contract** includes a Section H clause entitled “Identification and Representation of Limited Rights Data and Restricted Computer Software (Pre-Award),” which provides a “Data Rights Assertion Table” that allows Offerors to identify and represent pertinent data related to its specific limited data rights assertions.
- H.29 Identification and Representation of Limited Rights Data and Restricted Computer Software (Post-Award)
 - Used Post Award to make declaration on IP.

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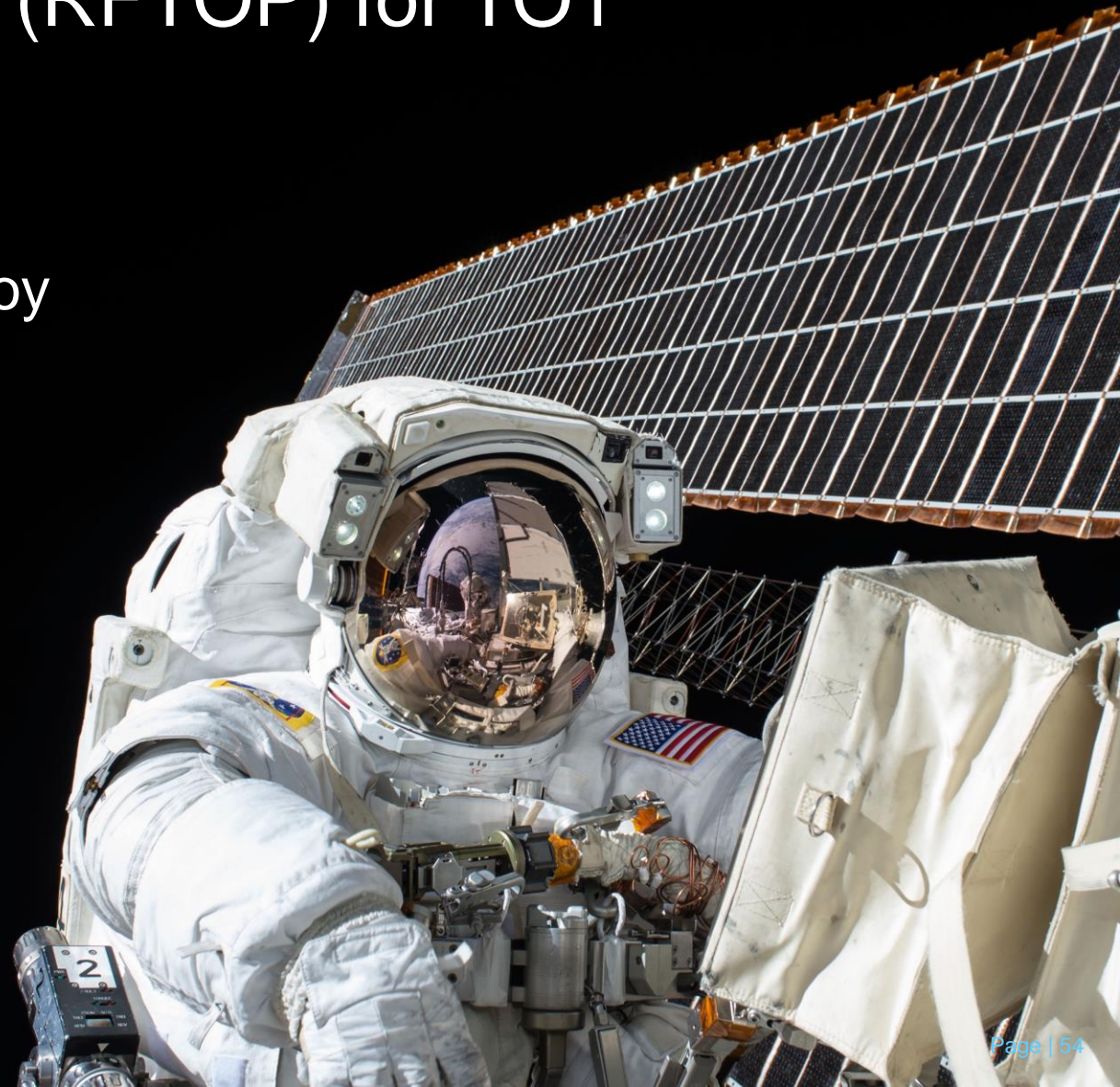
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Request for Task Order Proposal (RFTOP) for TO1 and TO2

National Aeronautics and Space
Administration



Chris McElroy
ISS Program



RFTOP: TO1 & TO2

- Task Order 1 (TO1) covers the Concept Verification (SOW 3.2.1) phase under CLIN 0001
 - The purpose of TO1 is to ensure full understanding and agreement between NASA and the contractor regarding the contractor's approach to completing the business and technical plans
- Task Order 2 (TO2) covers the Mission Definition (IM01/SOW 3.2.2) and Systems Requirements (IM02/SOW 3.2.3) phases of CLIN 0001
 - The purpose of TO2 is to reach joint agreement on critical management plans and tools needed for successful development of each Commercial Element and to draft the governing interface requirements and mature associated products through a series of reviews, discussions, and data exchanges that are jointly agreed to
 - TO2 concludes with the major milestone System Requirements Review

Proposal Review and Evaluation Criteria

David Korth
ISS Program

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Proposal Review

- Compliance Review
 - A compliance review will be conducted as described in Appendix I Section 5.1, which includes a NASA review of the Executive Summary. If after reading Executive Summary it is determined that the proposal fails to meet goals and objectives in Section 1.3, it shall be deemed non-compliant and will be withdrawn from the review process.
- Factor 1 – Relevance
 - Evaluates proposal's potential contribution to NASA's mission and the objectives stated in Section 1.3: Objectives of Appendix I
- Factor 2 – Technical Merit
 - Evaluates proposed Technical and Business Approaches as described in Volume 2 and all attachments for credibility, reasonableness, and risk
 - Evaluates the Offeror's capability, including but not limited to corporate resources, facilities, and the qualifications of key personnel, demonstrated by the proposal that would affect the likelihood of achieving the proposed approaches
- Factor 3 – Price
 - Evaluates the price using the data provided in Volume 3 for reasonableness
 - The evaluated price will consist of the sum of the total price for proposed CLINs 1-3
- Evaluation Criteria
 - Factor 2 (Technical Merit, which includes Technical and Business) is the most important
 - Factor 1 (Relevance) is more important than Factor 3 (Price)



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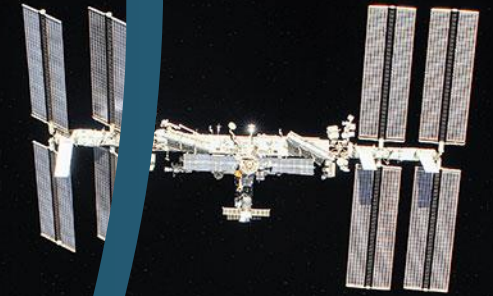
Q&A, Schedule, and Closing Remarks

David Korth
ISS Program



And finally....😊 Tips for Timeliness

- Gain access to the Technical Library per the instructions in the BAA Appendix Section 7.0
- Notices of Intent (NOIs) are due Friday, June 28th, 2019, 5 PM CDT
- Inquiries are due Friday, June 28th, 2019, 5 PM CDT
- Encourage submission of any Request for Support (RFS) to the appropriate Center POC by July 5th, 2019 or earlier to allow timely response
- Proposals must submitted electronically to FBO.gov by the due date and time stated in the BAA Appendix (August 5th, 2019 by 5 PM CDT)





Thanks for your interest!



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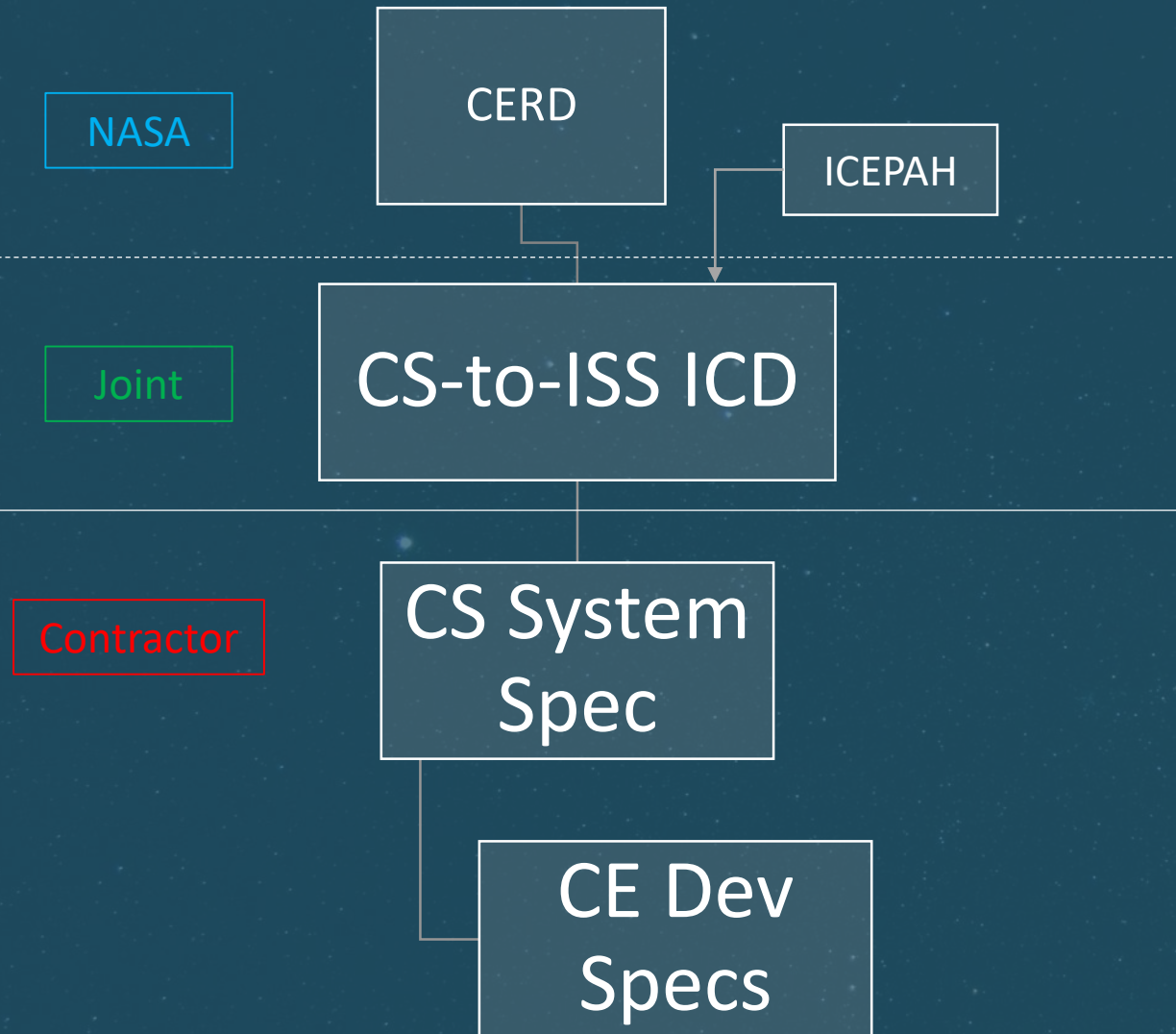
Back-Up Charts



System for Award Management (SAM)

- The System for Award Management (SAM) is a Federal Government owned and operated free web site that consolidates the capabilities in the:
 - Central Contractor Registration (CCR)/Federal Register;
 - Online Representations and Certifications Applications (ORCA); and
 - Excluded Parties List System (EPLS)
- Future phases of SAM will add the capabilities of other systems used in Federal procurement and awards processes
- The SAM website is located at: <https://www.sam.gov/SAM/>
- If you had an active record in the CCR database, you have an active record in SAM
- We recommend that you create an account in SAM in order to verify that your information in this database is current or to add information to SAM

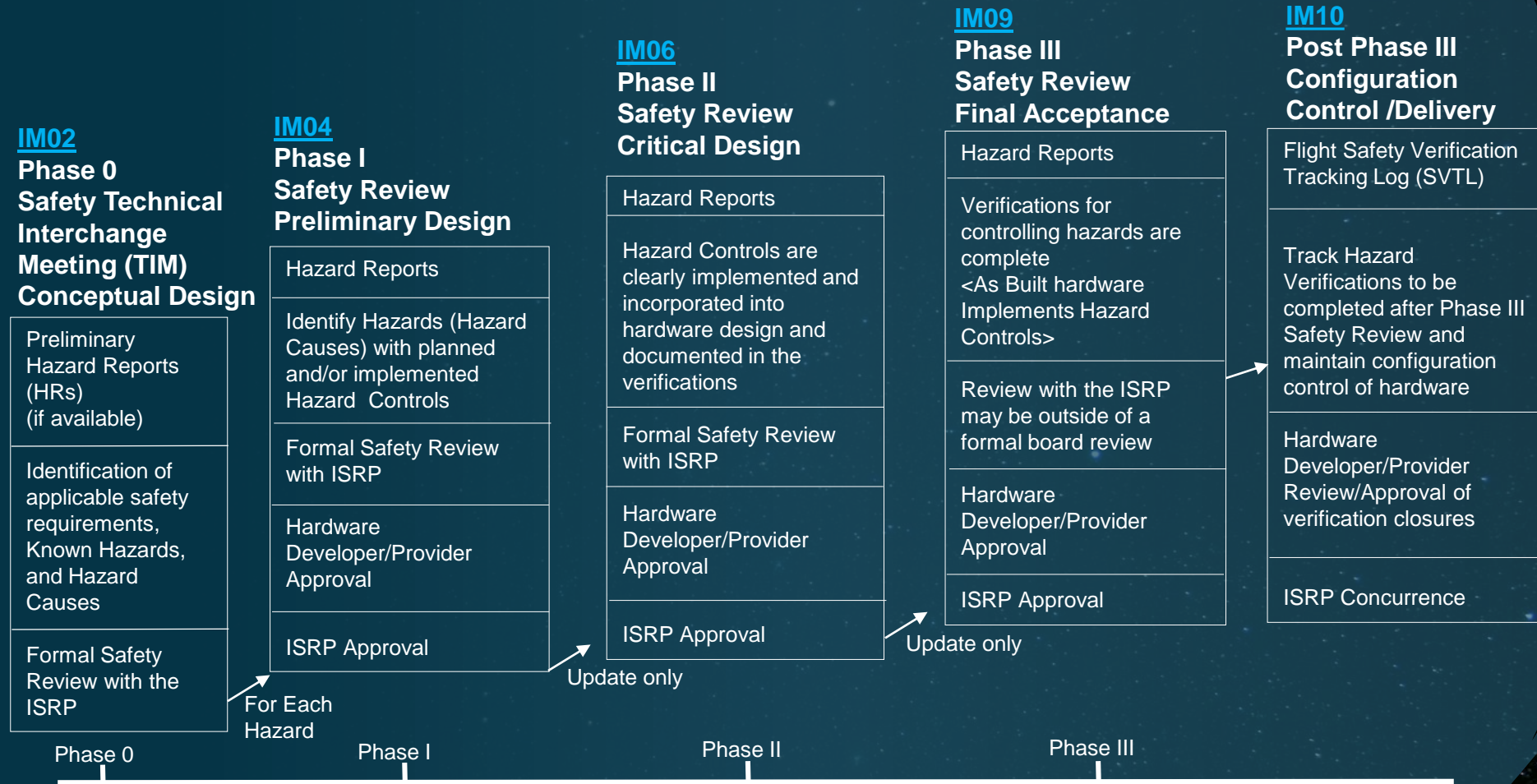
CS Requirements



- Commercial Element Requirements Document (CERD)
 - Interface and Safety Requirements
 - Verification Methods
- ISS CE Port Accommodation Handbook (ICEPAH)
 - Defines ISS interface standard services
 - Overview of ISS processes
- CS-to-ISS ICD
 - ISS Interface design/definition
 - CERD Applicability and Verification Matrix (AVM)
 - Alternate Design & Construction Standards

Phased Safety Review Process

Quick Reference for Safety Review Process



Integration Documents

- Commercial Segment Integration Plan (CSIP) [NASA] *In Development*
 - Defines ISS Integration Processes
 - e.g., NASA-to-Contractor Interfaces, Working Forums, Reviews, Verification, Data/Hardware Exchange Format
- Bilateral Data Exchange Agreements List/Schedule (BDEALS) [Joint]
 - Defines Data Exchanges between Contractor and NASA
e.g., Integration Analyses, Models
- Bilateral Hardware/Software Exchange Agreements List/Schedule (BHSEALS) [Joint]
 - Defines H/W and S/W Exchanges between Contractor and NASA
e.g., GFE, Interface Simulators, Simulation S/W
- Joint Integrated Verification and Test Plan (JIVTP) [Joint]
 - Defines Verification Events that satisfy interface requirements
e.g., Test Objectives Definition, Schedules
- Data Requirements Descriptions (DRDs) [Contractor]
 - Deliverable documents satisfying SOW requirements
 - May be NASA-approved

Future CLINs

- 3.4 CLIN 0003 – Demonstration of Commercial Segment Capabilities
 - Begins following activation and checkout
 - Ends with completion of the last demonstration objective
- 3.5 CLIN 0004 – Transition to Self-Sustaining LEO Commercial Destination
 - Begins following completion of CLIN 0003 demonstration objectives
 - Ends with the completion of the last transition objective and the departure of the Commercial Segment from the ISS
- 3.6 CLIN 0005 – Special Studies
 - Advance planning and feasibility studies in support of future contemplated missions
 - Development, fabrication, and test of hardware/software to support planning studies or special tests
 - Mission or cargo unique studies
 - Implementation of changes required due to changes in requirements